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ABSTRACT

This report reviews what is known about alternative routes to certification (ARC) in special education. First, it defines ARC and discusses the confluence of factors that has hastened its growth and popularity, particularly in specialized, high-need areas such as special education. Factors cited include persistent shortages of qualified personnel, an acute need for multicultural personnel, and the education establishment's hold on entry to the profession. The report then summarizes the available research on ARC in special education, with particular attention focused on the efficacy of the various approaches and programs as well as the process and outcome variables employed to assess program impact. Based on the research, the report discusses the programmatic features associated with successful ARC programs, including meaningful collaboration between institutions of higher education (IHEs) and local education agencies, adequate program length with a variety of learning activities, and IHE supervision and building-based mentor support. The report highlights what remains unknown about these programs and concludes with a series of recommendations for policymakers and the IHE and local education agency-based teacher educators who are developing ARC programs. (Contains 58 references.) (CR)

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Michael S. Rosenberg
Johns Hopkins University

Paul T. Sindelar
University of Florida

Council for Exceptional Children

National Clearinghouse for Professions in Special Education

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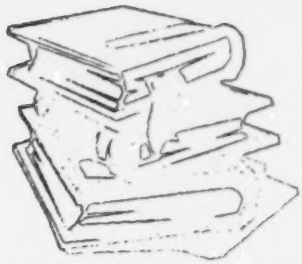
or contact:
National Clearinghouse for Professions in Special Education
Suite 300
1110 N. Glebe Rd
Arlington, Virginia 22201-5704

Telephone: 800.641.7824 TTY: 866.915.5000
FAX: 703.264.1637 E-MAIL: ncpse@cec.sped.org



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Michael S. Rosenberg
Johns Hopkins University

Paul T. Sindelar
University of Florida

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The Proliferation of Alternative Routes to Certification in Special Education: A Critical Review of the Literature

Alternative routes to certification (ARC) in special education are reviewed in this monograph. First ARC is defined; and then the confluence of factors that has hastened its growth and popularity, particularly in specialized, high need areas such as special education, is discussed. Available research in the area of ARC in special education is summarized with particular attention focused on the efficacy of the various approaches and programs as well as the process and outcome variables employed to assess program impact. Based upon the research, those programmatic features associated with successful ARC programs are discussed; and what remains unknown about these programs is highlighted. The review is concluded with a series of recommendations for policy makers and the variety of institutions of higher education (IHE) and local education agency (LEA) based teacher educators who are in the position of developing ARC programs.

With great hope, and often with considerable apprehension, many Americans send their children to public schools fully expecting that well-trained, dedicated teachers will provide a worthwhile and rewarding educational experience. Regardless of where they live or the level of their take-home pay, parents and guardians trust that skilled professionals are providing high-quality educational opportunities. Unfortunately, in many sectors of our society this trust is being violated. Many schools are not performing as they should, and there is evidence of institutional lethargy. In recent years, there has been no shortage of reform-minded manifestos, policy initiatives, and individual school efforts that have sought to improve public education. To many, a major reason for the drop in performance levels in many of our schools is that dedicated, knowledgeable, well-trained, and credentialed teachers are becoming rare commodities. School districts, particularly those in urban and rural areas, begin the school year with unfilled positions and actually lose personnel as the year progresses. This is particularly prevalent in historically high-need and specialized areas such as math, science, and special education. For those responsible for the recruitment and retention of qualified professionals there is a most troubling trend: As the number of challenges for our troubled public schools expands, it is getting increasingly difficult to find personnel who want to pursue a career in the field of education.

The traditional sources of supply for special education classrooms, freshly minted graduates of college or university degree programs, have not been able to meet the current and growing demand for teachers.

Conventional wisdom holds that desperate circumstances require bold and sometimes extreme actions. If so, then the massive growth in alternative paths to teacher certification and licensure in special education could be viewed as a legitimate and justified response to market conditions. For decades, there simply have not been enough qualified personnel to address the educational needs of the growing numbers of students with disabilities. Moreover, the traditional sources of supply for special education classrooms–freshly minted graduates of college or university degree programs–have not been able to meet the current and growing demand for teachers. Given these conditions, it seems only logical that we would develop innovative and creative alternatives to get interested individuals trained, licensed, and into special education classrooms.

Not surprisingly, alternative certification has become a growth industry. Feistritzer (1998) reported that 41 states plus the District of Columbia have over 117 alternative programs available for degreed persons who want a license to teach. As of 1997, over 75,000 persons had received certification through state-run programs, and thousands more had participated in higher education-based alternative programs.

With such large numbers, the stakes in this certification and licensure issue are high: Full certification is regarded as a basic teaching credential and is related to

student achievement (Darling-Hammond, 1999; 2000) and, not surprisingly, to public confidence in the public school system (Boe & Barkanic, 2000; National Commission on Teaching and America's Future, 1996). So, what do we know about the efficacy of alternative certification programs in special education? What are the outcome measures used to gauge the success of such programs? Do these programs address the need for highly qualified teachers as well as just the immediate need for quantity? Are there any critical differences between approaches that have been successful and those that have not worked? Are there any risks associated with less than optimal programs? And finally, what are the short-term and long-term implications of having large numbers of alternatively certified personnel?

At the same time that traditional teacher preparation programs are subject to rigorous standards-based program reviews, LEAs are permitted to hire less than fully qualified personnel and do so in large numbers.

In this article we review what is known about alternative routes to certification, hereafter referred to as ARC, in special education. First we define ARC and discuss the confluence of factors that has hastened its growth and popularity, particularly in specialized, high-need areas such as special education. We then summarize the available research on ARC in special education, with particular attention focused on the efficacy of the various approaches and programs as well as the process and outcome variables employed to assess program impact. Based on the research, we discuss the programmatic features associated with successful ARC programs and highlight what remains unknown about these programs. We conclude with a series of recommendations for policy makers and the institution of higher education (IHE)- and local education agency (LEA)-based teacher educators who are developing ARC programs.

What Is ARC?

Before we can define ARC, it is first necessary to describe the typical process of teacher certification. Most education professionals regard certification status as an index of teacher qualifications. According to Darling-Hammond (2000), a standard certificate generally means that a teacher has been prepared in a state-approved teacher education program that has combined aspects of specific subject matter knowledge with knowledge of teaching and learning processes. States exercise the authority for licensing teachers, often by approving programs at colleges and universities that deliver and monitor required coursework and field experiences. Although the requirements for obtaining a license through approved program routes vary greatly, there is a general recognition that valid and explicit professional standards are necessary for teacher preparation. Among the more prominent groups associated with the development, refinement, and maintenance of these standards are the National Council for the Accreditation of Teacher Education (NCATE) and its subject and specialty area partners, the Council for Exceptional Children (CEC), the National Council for the Teaching of English (NCTE), and the National Council for the Teaching of Mathematics (NCTM), among others. Regularly scheduled state education agency reviews of college and university programs (the preparation for which requires considerable faculty time and IHE resources) allow for reflection on and refinements of long-standing, institutionalized practices (Clemson-Ingram & Fessler, 1997).

Ironically, at the same time that traditional teacher preparation programs are subject to rigorous standards-based program reviews, LEAs are permitted to hire less than fully qualified personnel and do so in large numbers. Darling-Hammond (2000) indicated that well over one quarter of all newly hired teachers have either no license or a substandard license in areas they are hired to teach. These same data indicate that the problem is most acute in poverty-laden urban schools with high enrollments of students from multicultural backgrounds. Not surprisingly, urban schools' need for competent teachers has been a major impetus for the emergence and growth of ARC programs.

Defining the critical features of ARC programs is difficult, however, because programs instituted by states, LEAs, and IHEs vary greatly. Also, the term ARC has multiple meanings and applications, and it has been used to reference a number of

avenues to teaching, ranging from Spartan emergency certification survival training to sophisticated high-tech programs for individuals with unique life experiences (Feistritzer, 1998; Hillkirk, 2000). So variable have ARC programs become that treating them as a homogeneous class no longer seems reasonable. In fact, teacher preparation generally may be best represented as a continuum ranging from abbreviated to traditional training. Even the point at which alternative ends and traditional begins is uncertain, as our descriptions of the ALTCERT program (Rosenberg & Rock, 1994) and others (e.g., Burstein & Sears, 1998) will attest.

Nonetheless, on a basic level, the defining characteristic of ARC lies in what the programs choose to avoid: ARC programs provide access to a teaching credential that circumvents conventional college and university preparation programs (Hawley, 1992). ARC programs prepare teachers in nontraditional ways and allow individuals without traditional undergraduate teacher preparation entry to the education profession (Roth & Lutz, 1986). As noted by Feistritzer (1998), ARC programs have "opened doors to teaching for persons from other careers, from the military, from liberal arts colleges, former teachers who want to upgrade their credentials and get back into teaching and for people who trained to teach years ago but never did" (p. 1).

We believe that teacher preparation programs vary in three respects–length and structure of program, delivery mode, and candidate population–and that the extent to which a program is "alternative" (or traditional, for that matter) may be assessed by considering these variations. *Length and structure of program* refers to the number of content-specific credits or academic units required to attain certification and the types of activities that are employed to foster the acquisition of the content. For example, in some programs, field-based application activities and seminars replace traditional coursework in pedagogy (e.g., Rosenberg & Rock, 1994), while in other fast-track routes, instruction in pedagogy is minimized because it is assumed that teachers will learn these skills on the job (Darling-Hammond, 1992). For the most part, ARC programs are usually shorter than traditional programs and are structured to allow candidates to enter the teaching force immediately or soon after beginning their studies.

Urban schools' need for competent teachers has been a major impetus for the emergence and growth of ARC programs.

Delivery mode refers to how instruction is presented. For example, some programs provide coursework where the candidates work (Gaynor & Little, 1997), while others supplement direct instruction with clinical experiences supported by university supervision and local master teacher mentorship (Paccione, McWhorter, & Richburg, 2000). Some programs (e.g., Edelen-Smith & Sileo, 1996) have made use of distance education technologies that provide access to instruction in remote areas not served by IHEs. In general, ARC programs tend to rely more heavily on field experiences than traditional teacher preparation and less on formal classroom instruction. In fact, Sindelar and Marks (1993), among others, have commented favorably on this aspect of ARC training and its potential for improving traditional teacher education practice.

Also, although no accounts of such programs have been found in the literature, on-line, web-based teacher preparation will soon be a reality (see, for example, http://www.completeteacher.com). It also is likely that the growth of private sector involvement in postsecondary education will be a factor in how teacher preparation and certification programs are conceptualized, formatted, and delivered: The emergence of a corporate, for-profit framework in what had been an exclusively academic domain seems imminent (Rosenberg & Sindelar, 1998).

The *candidates* for ARC typically do not have a substantial background in general or special education; their bachelor's degrees (if they have them) are usually in other fields. In comparison to traditional programs, ARC programs tend to attract proportionally more males; persons over 25; persons from multicultural backgrounds; individuals who have had business, industry, or military experience; and math, science, and foreign language majors (Edelen-Smith & Sileo, 1996; Hawley, 1992;

ARC has multiple meanings and applications and has been used to reference a number of avenues to teaching, ranging from Spartan emergency certification survival training to sophisticated, high tech programs for individuals with unique life experiences.

Roth & Lutz, 1986). ARC programs also appear to be successful in recruiting individuals from multicultural backgrounds to work in urban environments. Shen (1998), for example, found that ARC policies have a greater impact on the recruitment of teachers from multicultural backgrounds than white teachers and that these individuals tend to work in urban rather than suburban and rural settings. Finally, although the media tend to focus on top-flight experts who desire to teach, the available data indicate that career changers in ARC programs tend to come from jobs in the low salary ranges rather than from the professional or managerial ranks (Kirby, Darling-Hammond, & Hudson, 1989).

Proliferation of ARC in Special Education

Three major factors have contributed to the rapid growth of ARC in special education: the persistent shortages of qualified teachers, the acute need for teachers from multicultural backgrounds, and dissatisfaction with the education establishment's hold on entry to the profession.

Persistent Shortages of Qualified Personnel

Although there is some disagreement as to the extent of the teacher shortage in general education (e.g., Feistritzer, 1998; Thomas Fordham Foundation, 1999), there is little doubt that there has been, and continues to be, a chronic and severe shortage of special educators. For example, in the 1996-1997 school year, over 31,000 special educators were needed in the states and territories to fill vacancies and replace less than fully certified teachers (U.S. Department of Education, 1999). This total represents over 9.5% of all special educators employed, a figure that has remained relatively constant over the past 10 years.

According to Boe, Cook, Bobbitt, and Terhanian (1998), teacher shortages in special education are not due to the unavailability of individuals willing to accept the open positions (indeed, approximately 99% of open special education positions are filled), but are due to an insufficient supply of personnel with the qualities and credentials sought by school districts. In fact, Boe and colleagues' data indicate that approximately 32% of all entering special education teachers and 7.8% of continuing special education teachers are not fully certified. Such data leave little doubt as to why LEAs, State education agencies (SEA), and IHEs have explored creative, rapid, and easily accessible options to traditional teacher preparation. Decades of shortages in the supply of fully certified special educators, coupled with inadequate production of graduates from IHEs–meeting only one half of the demand for special education teacher hires each year (Council for Exceptional Children, 2000)–have prompted the consideration of flexible certification programs that attract promising individuals and consider varying life experiences (Conderman, Stephens, & Hazelkorn, 1999).

Acute Need for Multicultural Personnel

Although the shortage of qualified special education teachers is severe, the shortage of both general and special educators from multicultural backgrounds is even more acute. Over 32% of all public school students come from nonwhite or ethnically and culturally diverse backgrounds, and they are served by a teaching force that is comprised of only 13.5% multicultural teachers. In fact, over 42% of all public schools have no multicultural teachers at all (Henke, Choy, & Geis, 1996). In special education, the disproportionate representation between students and teachers is similar and may be growing. Cook and Boe (1995) reported that special education teachers are predominantly white (86%), while the student population requiring special education is diverse (32%).

Although the need for diversity in the teaching force may be obvious, it bears repeating at this juncture. A diverse teaching force provides visible role models for a

full range of students, many of whom who have not seen an individual of their race or ethnicity in a position of status and leadership. Moreover, diversity among teachers demonstrates explicitly the concept of equality of opportunity and allows for the delivery of culturally responsive instruction in a range of communication styles. As summarized by Sileo (2000), teachers who share a student's ethnic or cultural background may have a better opportunity to establish communication with families and may be better able to provide access to meaningful educational opportunities that are inherent to the shared community and culture.

Unfortunately, the need for a more diverse presence in the special education teaching force has not translated into large numbers of students from diverse ethnic and cultural groups enrolling in and ultimately completing traditional special education teacher preparation programs. Sileo noted that many capable individuals from diverse backgrounds are drawn to professions that are more lucrative and prestigious than teaching, and that in some cases stringent program entry and exit requirements (e.g., state and national examinations) and program length dissuade qualified students from these backgrounds from enrolling.

In sharp contrast, ARC programs tend to recruit a higher percentage of teachers from multicultural backgrounds into public school teaching than traditional programs, and those recruited tend to work in urban schools with high concentrations of students from multicultural backgrounds. For example, in a rather large sample (N = 14, 719) of both ARC (n = 1,118) and traditionally certified teachers (n=13,601), Shen (2000) found that among those who were traditionally certified 87% were white and 13% were from culturally diverse backgrounds. Among the ARC sample, 79% were white and 21% were from diverse ethnic and cultural groups. Among the teachers from diverse backgrounds, 67% of the traditionally certified teachers worked in urban areas compared with 87% of those who were in the ARC group. In short, ARC programs recruit a higher percentage of ethnically and culturally diverse teachers than traditional preparation programs. and these individuals have a greater tendency to work in schools where students from multicultural backgrounds are a majority of the student body.

These data confirm what many urban educators have known for a long time: Traditional sources for the supply of ethnically and culturally diverse educators are unable to keep up with the demand. Not surprisingly, many urban school districts, routinely and desperately in need of large numbers of qualified special education teachers from multicultural backgrounds, consider ARC programs a more viable source of supply of special education teachers–both white and from diverse ethnic and cultural backgrounds–than traditional programs. Not only are there greater numbers of candidates, but there are greater numbers of opportunities to tailor program content to address the challenges specific to urban and culturally and ethnically diverse schools.

The defining characteristic of ARC lies in what the programs choose to avoid: ARC programs provide access to a teaching credential that circumvents conventional college and university preparation programs.

The Education Establishment's Hold on Entry to the Profession

Another factor contributing to the growth of ARC programs is the sentiment from several political action groups outside the profession that traditional approaches to teacher preparation are self-serving, bloated, overregulatory, and anachronistic. Moreover, attempts at reform that emanate from educators within the teacher education community are merely tinkering at the edges of a system that has failed to improve teacher quality. In an earlier article (Sindelar & Rosenberg, 2000), we summarized how two foundations, the Milken Family Foundation and the Thomas B. Fordham Foundation, have been particularly vocal in their disdain for traditional teacher education approaches to certification and licensure. In short, these foundations question the regulatory assumption that good teaching rests on a solid foundation of specialized professional knowledge about pedagogy and that the existing standards screen out ill-prepared teacher candidates. What traditional programs do, they claim, is discourage talented liberal arts graduates who wish to

teach but who do not want to endure "Mickey Mouse" (Thomas B. Fordham Foundation, 1999, p. 5) pedagogical training. These groups have urged states to open more paths into the teaching profession and to encourage individuals who have not attended traditional schools of education to teach. The Thomas B. Fordham Foundation, for example, views ARC programs as a means for streamlining the entry of talented and enthusiastic individuals who might otherwise be lost to the calling of teaching. ARC programs are seen as tangible evidence that there is no one best method for developing teachers and that it is time to break the monopoly held by the education establishment's network of traditional teacher preparation programs.

In general, ARC programs tend to rely more heavily on field experiences than traditional teacher preparation and less on formal classroom instruction.

If the gatekeeping monopoly held by teacher education programs is broken (and many would say that it already is), who is to provide the ARC programs and train nontraditional candidates? According to the Thomas B. Fordham Foundation, states should encourage the development and growth of programs that provide compressed basic training for prospective teachers. A number of programs meeting these criteria are already available. A few years ago, we chronicled the growth of for-profit universities (Rosenberg & Sindelar, 1998) that cater to career-minded working professionals who demand an active say in determining the content of their courses and programs. These programs are designed for students who are too busy to attend traditional campus-based programs and who want convenient "24-7" access to classes and curricula stripped down to the essentials. According to Traub (1997), these students do not want to buy anything they will not be using or to address content that they believe is unrelated to their professional performance.

In a market of both extreme special education teacher shortages and consumer-minded potential students, for-profit convenience institutions (see Finn, 1998) and many financially strapped regional and state mass-market institutions of higher education may be more than willing to provide consumers-both students and local education agencies-with courses and learning activities that merely address the minimal requirements for continued employment as a special education teacher. However, it remains to be seen whether the mere accumulation of course credits and a virtual "end run" around the education establishment gatekeeper will result in professional competence in special education settings.

ARC: A Critical Review of the Literature

Critical Contextual Findings

We have learned a great deal about teachers' qualifications and how they relate to important outcomes such as student achievement. For example, Darling-Hammond (2000) has argued that when teachers' qualifications are operationalized as certification, advanced degrees, and experience, qualifications correlate significantly and positively with student achievement. Important as it is, this finding does not address the issue of how teachers are prepared. Teachers who complete traditional teacher education programs are equivalent in such studies to teachers who complete ARC programs in that both are certified. In this article, we are focused on the nature of initial preparation and its impact on important outcomes (such as student achievement), and information pertinent to that question is harder to find.

Our focus on the nature of initial preparation limits the usefulness of other interesting and seemingly pertinent findings. For example, in their study of retention, attrition, and transfer, Boe, Bobbitt, Cook, Whitener, and Weber (1996) differentiated between partially and fully certified teachers. Their finding that partially certified special education teachers were twice as likely to move from school to school and twice as likely to leave teaching is interesting and important. However, we know nothing about the nature of the initial preparation of either fully certified teachers, some of whom may have completed alternative programs, or partially certified teachers, some of whom may have been enrolled in traditional programs.

On the other hand, Shen (1997), who has studied ARC participant demographics, reported that ARC teachers are more likely to have entered teaching from a position outside of education. The proportion of males does not differ by program type, and neither does the degree of educational attainment. Although ARC programs have been shown to reduce shortages in urban areas and in math and science, there is no evidence that they alleviate shortages in rural districts. Thus, according to Shen, ARC programming has partially fulfilled its promise: It has been an avenue through which candidates from diverse cultural backgrounds have entered teaching, and it has helped to reduce certain critical shortages. On the other hand, it has not led to increased supply everywhere, and the belief that ARC programs would attract older candidates with higher educational attainment and more males has not been borne out.

Sindelar and Marks (1993) argued that research on ARC programs supported two generalizations about ARC graduates: First, in an absolute sense, they typically and consistently are judged to be at least minimally competent teachers. However, when compared to graduates of traditional teacher education programs, and when differences are found, ARC graduates are judged less competent. In the few studies in which student outcomes were used as a dependent variable, findings have been equivocal. Graduates of ARC programs have been reported to score as high as and sometimes better than traditionally prepared graduates on competency and certification tests and tests of pedagogy. Finally, when differences have been reported, ARC programs typically have attracted more participants from diverse cultural backgrounds.

Through 1993, research on ARC painted a mixed picture indeed. Some outcomes--such as the high representation of participants from diverse backgrounds--were laudable, and most outcomes were satisfactory if not notable. We believe that a finding of no difference is important in this context, in which conventionally trained and nontraditionally trained teachers are compared. After all, ARC programs arose in special education in response to chronic shortages and with the promise of attracting to the field individuals who otherwise would eschew teacher education. That research would portray ARC graduates as competent and often as competent as traditionally trained teachers is important. Yet, in these studies, no ARC program was shown to contribute uniquely to the supply of special education teachers. We have only descriptions of participants to support our hope that such programs will help to address shortages.

We know far more about ARC programs in math and science than about ARC programs in special education, and, arguably, the secondary content model has worked. Although Darling-Hammond (1992) argued otherwise on the basis of early evidence, subsequent studies have been persuasive about the potential of ARC. For example, Miller, McKenna, and McKenna (1998) conducted three studies in which graduates of an ARC program and matched, traditionally trained, middle school teachers were compared. On observations of classroom performance, student achievement in math and reading, and self-reports of ability and preparedness, no differences were found. When we say "secondary content model," we refer to the recruitment of individuals with content expertise (e.g., undergraduate math majors, engineers) into programs that focus on content-specific pedagogy. Obviously, the secondary content model has limited application for a discipline like special education in which content is more pedagogy and process than a specific subject area.

In comparison to traditional programs, ARC programs tend to attract proportionally more males, persons over 25, minorities, individuals who have had business, industry, or military experience, and math, science, and foreign language majors.

What We Know from the Special Education Literature

The extent of ARC in special education. In 1995, Buck, Polloway, and Mortorff-Robb, characterized the growth of ARC in special education as proliferation. They reported findings from a survey of state departments of education in which they found that 39 states authorized alternative programs generally and that 24 of them

included special education in that authorization. Because they conducted this survey for the Council for Learning Disabilities, they also asked specifically about ARC programs in learning disabilities (LD). Every state that had authorized special education ARC programs also had authorized ARC programs in learning disabilities.

ARC policies have a greater impact on the recruitment of minority teachers than white teachers, and these individuals tend to work in urban rather than suburban and rural settings.

These authors went on to describe the rapid growth in ARC programs over the previous decade since the Feistritzer and Chester (1991) report when only six states reported ARC programs in special education. They asked non-ARC states whether they planned to add them in the next 5 years, and four states expressed such intentions. Moreover, ARC programs had been added in nine states within the previous 2 years. Finally, Buck and colleagues (1995) asked whether states conducted evaluations of ARC programs and, if so, how graduates compared to graduates of traditional training programs. A substantial majority of states (88%) reported that they did conduct evaluations, and although most made no direct comparisons with traditional graduates, those that did reported no differences between the programs.

If states are conducting evaluations of their ARC programs, their reports are not finding their way into the teacher education literature. In fact, our search of the literature yielded few empirical studies of any sort (Banks & Necco, 1987; Edelen-Smith & Sileo, 1996; Epanchin & Wooley-Brown, 1993; Gaynor & Little, 1997; Rosenberg & Rock, 1994; Sindelar, Rennells, Daunic, Austrich, & Eisele, 1999) and none conducted by SEAs. It is to these studies that we now turn our attention.

ARC and special education teacher attrition. In a large study of teacher attrition, Banks and Necco (1987) surveyed teachers who left the field of special education in West Virginia. A subset of 39 (of 203 total respondents) had completed ARC programs. Banks and Necco found that job longevity was related to initial preparation, such that graduates of ARC programs stayed in teaching for fewer years (M = 4) than graduates of traditional teacher education programs, who averaged 6 years. (Unfortunately, these findings failed to take into account teachers who had left the field before the surveys were administered and offered no description of the nature of the ARC programs their respondents completed.) Banks and Necco also reported a relationship between length of training and attrition, using highest degree earned as a proxy for length of training. They reported that the longevity of teachers with master's degrees was 3 years greater than that of teachers with bachelor's degrees.

Miller, Brownell, and Smith (1999) also reported a relationship between certification status and the probability of teachers remaining on the job. These researchers found a significant difference in the proportion of fully certified teachers among what they termed "stayers" (p = 88%) and "leavers" (p = 79%). In one sense, these findings are less informative about the effects of initial preparation than are Banks and Necco's, because they refer only to current certification status, and not to the nature of teachers' initial preparation. That is, some members of the group of currently certified teachers may well have completed ARC programs, and some members of the uncertified group may well have been enrolled in traditional programs. An example of the latter would be a certified teacher teaching out of field and working simultaneously to add new certifications via a traditional program. In short, in research on the effects of teacher education, current certification status should not be regarded as equivalent to the nature of initial preparation.

In short, in research on the effects of teacher education, current certification status should not be regarded as equivalent to the nature of initial preparation.

Evaluations of ARC programs in special education. Whereas Banks and Necco addressed the question of how long traditionally and alternatively trained teachers are likely to remain in the field, other researchers have posed questions about particular alternative programs. These questions include the following: What are the elements of the training program? For whom is it designed? Who enrolls and how do they do in the program? What kind of teachers do they become? Are they as capable in their work with children as graduates of traditional teacher preparation programs? How long do they remain in the field? We found seven studies that

addressed one or more of these questions (Burstein & Sears, 1998; Edelen-Smith & Sileo, 1996 ; Epanchin & Wooley-Brown, 1993; Gaynor & Little, 1997; Ludlow & Weinke 1994; Rosenberg & Rock, 1994; Sindelar et al., 1999).

Before we review these studies, it may be worthwhile to consider some of the difficulties researchers face in conducting studies of the outcomes of teacher education, some of which have been discussed elsewhere (e.g., Sindelar & Marks, 1993). To begin with, there is the problem of comparability of groups. To the extent that ARC programs are designed for specific, nontraditional populations (and they tend to be), students in one program are certain to differ in important ways from students in another. Take, for example, programs designed for military retirees. Students who populate these programs are likely to have little in common with students in traditional teacher education programs, and some of those differences (e.g., age, life experience) may relate to the kind of teachers they become. Furthermore, teacher education takes place over the course of years; it comprises many courses and field experiences, and many different instructors and supervisors contribute to it. Understanding and describing the many and complex ways in which programs may differ, however essential it is in understanding outcomes, seems difficult if not impossible.

We do not mean to belabor this point; but there are other significant problems we might discuss, including the lack of reliable and valid instrumentation with which to measure outcomes and the general difficulty we and others have had in differentiating between alternative and traditional programs. Given the difficulty involved in studying teacher education outcomes, it comes as no surprise that we found few studies in which programs were compared to one another. More typical were evaluation studies of single programs. Whereas such studies avoid some of these pitfalls (e.g., comparability of student groups), they remain vulnerable to others (e.g., adequate program description, instrumentation). As authors of some of these articles, we appreciate the difficulty of conducting research on teacher education outcomes and have approached our review with a sympathetic, if not entirely uncritical, eye.

To the extent that ARC programs are designed for specific, nontraditional populations (and they tend to be), students in one program are certain to differ in important ways from students in another.

Epanchin and Wooley-Brown (1993) described a collaborative IHE/LEA program between the University of South Florida and Polk County designed primarily for paraprofessionals and conducted in the schools where the participants were employed. The project built upon the idea that training people with roots in the community is a sensible alternative for districts that have difficulty recruiting teachers from distant teacher education programs. In fact, this program was designed to provide the collaborating district with two cohorts of 30 certified special education teachers-an influx of qualified professionals that would surely reduce shortages dramatically for years to come. The program was studded with innovations, including the use of expert teachers as instructors, individual mentorships, and a transformative nature that required substantive change in how both the university and the district conducted teacher education. Although their article was a preliminary report, Epanchin and Wooley-Brown did note that roughly 25% of the students in their first cohort were African American, Hispanic, or Native American.

The work of Epanchin and Wooley-Brown illustrates one salubrious effect for traditional teacher education of collaborating with LEAs on nontraditional programs: in the authors' words, being forced "to think outside the lines." Like the authors, we believe that IHE/LEA collaborations are fraught with difficulties that are often taken for granted in traditional teacher education. For example, Epanchin and Wooley-Brown worked long and hard with university admissions so the institution could fairly handle applications from older individuals with sometimes unconventional academic careers. Epanchin and Wooley-Brown solved this problem, and the creative solutions they devised for this and other dilemmas introduced new ideas into the traditional program and shook up the complacence that had sustained it. The same might be argued of a program described and evaluated by Edelen-Smith and Sileo (1996) in Hawaii.

This program (Alternative Basic Certification Program in Special Education, or ABC-SE) was the fruit of collaboration between the University of Hawaii and the Hawaii Department of Education. ABC-SE was a 2-year program for individuals with bachelor's degrees hired on temporary assignment in special education classrooms. Teaching methods were emphasized in the 24-credit program, as were field experiences and mentorship provided by Department of Education supervisors. Edelen-Smith and Sileo reported a high proportion of males (44%) in their initial cohorts and a high and commendable percentage of participants from multicultural backgrounds (70%). More than three fourths of the 54 program completers went on to be certified in special education. Although nearly one third of the participants who started dropped out during the program, 87% of those who went on to teach were on the job in Hawaii 1 to 3 years later.

Edelen-Smith and Sileo evaluated the ABC-SE program using self-report instruments. Participants judged the program competencies to be somewhat to very important and described themselves as feeling somewhat to very confident in their ability to perform them. We cannot put much stock in the validity of such self-reports; but the participants' high satisfaction with program content and faculty, their ethnic and racial diversity, and the number who entered and stayed in the field are all notable accomplishments. The authors' focus on uncertified postbaccalaureate teachers is similar to that of both Gaynor and Little (1997) in Florida and Rosenberg and Rock (1994) in and around the Baltimore metropolitan area.

Gaynor and Little (1997) described a program run by a district with little collaborative support from university teacher education programs. In this sense, the Volusia County Alternative Add-on Certification Program (VCAAP) differed from both the USF/Polk County and ABC-SE programs. However, like Epanchin and Wooley-Brown, these authors espoused the belief that teacher shortages have local origins and must be solved locally. Like ABC-SE, VCAAP was an add-on certification program for teachers teaching out of field. The authors characterized VCAAP as a clone of programs at the University of Central Florida (UCF), which maintains a campus in Daytona Beach in Volusia County. UCF-Daytona Beach faculty are involved in the implementation of the program, but participants who complete the program are not certified by UCF. Under Florida statute, the district is authorized to conduct training and recommend trainees for certification. In this sense, VCAAP differed from both of the previous programs, in which certification was recommended by the IHE collaborator.

VCAAP offered (and continues to offer) certification options in, using Florida parlance, Mental Retardation, Emotional Handicap, and Varying Exceptionalities, each comprising inservice components and each the equivalent of a college course. Eleven or twelve of such 60-hour components are required for certification. Gaynor and Little reported rapid growth in the number of program graduates and a sizable initial enrollment of 275 students not certified in secondary content areas, of whom 29 had completed the program at the time this article was written. Their pass rate on certification examinations was nearly perfect. Furthermore, 16.7% of the participants were African American, 3% were Hispanic, and 26.5% were males, figures that compare favorably to district averages. As was true for the other ARC programs we have reviewed, age distinguished VCAAP students from traditional teacher education students; that is, 70% were 36 years of age or older. As was true in the ABC-SE program, attrition was high: 94 participants dropped out before completing the program, with many returning to general education assignments. Gaynor and Little were unconcerned about drop-outs who remained in the district because, having completed even part of the program, they were better prepared to work with the students with disabilities assigned to their classes. VCAAP inservice components also were taken by many teachers who used them for recertification purposes.

The Alternative Basic Certification Program in Special Education was the fruit of collaboration between the University of Hawaii and the Hawaii Department of Education.

In spite of the absence of assessments of graduates' performance, the VCAAP remains an impressive effort. For one thing, it was the creation of an LEA and was offered with only the assistance of a local IHE. For another, it was a massive undertaking, with over 275 beneficiaries at the time this article was written. In terms of scale, no other program reported in the literature comes close to matching VCAAP's numbers. Finally, VCAAP truly does represent a local solution to a local problem, and in this way it advances practice beyond, for example, a collaborative program like USF/Polk County, which requires for implementation a university teacher education program within commuting distance or distance education technology.

The ALTCERT program, described and evaluated by Rosenberg and Rock (1994), strikes us as something of a hybrid of the previous three programs. For one thing, it is collaborative, but its collaboration involved a university (Johns Hopkins University) with both a district (two, in fact) and a state agency. Like ABC-SE and VCAAP, ALTCERT was designed for participants with bachelor's degrees who had already been hired as teachers; and, like the USF/Polk County program, it provided candidates with the opportunity to earn a degree–in this case, a master's degree. However, the ALTCERT evaluation involved independent ratings of program graduates and comparisons of them with graduates of traditional teacher education programs. Thus, in terms of quality and rigor, the ALTCERT evaluation is unusual in the special education teacher education literature.

ALTCERT emphasized fieldwork and had a tight programmatic focus on preparing teachers to work with secondary students with mild to moderate disabilities-MMD in the Maryland lexicon. It required 2 years of study and the completion of 36 credits of university coursework, and program completers were left only 3 credits and a research project short of a master's degree. Like the USF/Polk County program, requirements were identical to those of the on-campus program. Rosenberg and Rock worked with a single cohort of 18 students, half of whom were males and nearly three fourths of whom were African American. Fourteen of them, including 11 African Americans, completed the program.

The Volusia County (Florida) Alternative Add-on Certification Program represents a local solution to a local problem.

Participants were evaluated separately using district and project procedures and instruments. In each case, ALTCERT teachers were rated at least satisfactory and often higher by district supervisors, employing principals, and special education supervisors. Ratings were better the second year of the program than the first. Supervisors also compared ALTCERT participants with average beginning teachers, and district ratings were made of ALTCERT participants and matched comparison teachers. In all cases, the ALTCERT teachers were judged to be at least comparable to traditional teacher education program graduates. These are impressive and persuasive outcomes. They illustrate two points that we will emphasize later in more detail: Good alternative preparation is possible, but it is not easily achieved.

Such is the case with the on-the-job teacher preparation program designed by Burstein and Sears (1998) in California. The goal of their program was to assist urban teachers, credentialed in general education, who were hired on emergency certificates to teach students with mild to moderate disabilities. To achieve the goal, a 37-unit program consisting of practica, practica seminars, and traditional coursework was designed in which the practica occurred in the teachers' own classrooms with supervision from both university faculty and on-site district teacher/supervisors. The teachers' classrooms were viewed as "laboratories" for the implementation and evaluation of strategies introduced in methods classes.

From an initial sample of 43 teachers, 35 completed the 2-year program. Data were collected in three domains: teacher development, program satisfaction, and job satisfaction. Teacher development was measured quantitatively through measures of competency attainment provided by university supervisors, employers, and the candidates themselves. In all cases, teachers' competence increased over time throughout the program. Qualitative measures of teacher development were

collected from journals and portfolios and reflected a growing confidence with their abilities in spite of a continued frustration with working conditions.

The teachers were very satisfied with the program and were particularly pleased with the level of support provided in their classrooms. Job satisfaction was assessed though a field experience questionnaire, journals, and a stress inventory. Although these data sources reflected a number of positive experiences (e.g., academic and social improvement of students, relationships with students), the overall conclusions from these measures was that the teachers experienced difficult and demanding working conditions and, with the exception of project personnel, often felt unsupported in their working environment.

The literature we have reviewed to this point suggests strongly that alternative is not a synonym for quick or easy. In fact, in these studies, alternative is used in the sense of reaching nontraditional populations of people, perhaps at nontraditional venues, or through nontraditional means and supports. Clearly, the special education research to date offers little support to the proposition that quick and abbreviated preparation is a viable alternative to traditional teacher education.

We found two studies (Ludlow & Weinke 1994; Sindelar, Rennells, Daunic, Austrich, & Eisele, 1999) that spoke to this assertion by comparing different approaches to alternative preparation. Unfortunately, these authors did not reach the same conclusions about the importance of program length and rigor. Ludlow and Weinke (1994), on the one hand, described two large and long-operating alternative certification programs, one conducted by the Houston Unified School District and the other by San Jose State University. These researchers made on-site visits; conducted interviews with key personnel, participants, and their employers; and conducted document analyses. They described the two programs as university/district collaborative programs, one district-led and one university-led. They concluded that the university-led program was longer and more substantive, but that both prepared competent teachers.

The Houston trainees were uncertified teachers who took 9 or 10 university courses, depending on their specialization, and were mentored in their classrooms by district supervisors. The program took a year to complete. The San Jose State University program was also designed for practicing teachers, but it was longer (2 years) and required more courses and field experiences. (In fact, this alternative program has the same course requirements as the on-campus program at SJSU.) Participants in both programs believed their programs were viable, effective, and better than traditional teacher education. Both groups of participants identified the same program strengths: practical orientation in courses, supervision by district personnel, and cohort organization. Little mention was made of university contributions to the programs.

ALTCERT was a collaborative program involving Johns Hopkins University, two local school districts, and a state agency.

Like Ludlow and Weinke, Sindelar and colleagues (1999) compared different types of ARC programs, all in Florida; unlike Ludlow and Weinke, however, Sindelar and colleagues studied multiple examples of each type of program. Furthermore, like Rosenberg and Rock (1994), they compared graduates of these ARC programs with graduates of traditional programs. Their measures included classroom observations (using PRAXIS III), principals' ratings, and self-reports of ability and sense of preparedness to teach. Statistical comparisons of traditional and alternative programs were made.

Sindelar and colleagues organized the ARC programs they studied into two categories: IHE/LEA collaboratives and LEA-only programs. The collaborative programs tended to be longer and to lead to degrees as well as certification. The USF/Polk County program (Epanchin & Wooley-Brown, 1993) exemplified this class of programs;in fact, it was one of the three collaborative programs that Sindelar and colleagues studied. VCAAP is an excellent example of the LEA–only genre (although it

was not included). Graduates (or completers) of these six ARC programs were compared to graduates of four traditional teacher education programs in Florida.

On PRAXIS III observations, teachers are rated on 19 criteria organized into four domains: A, "Organizing Content Knowledge for Student Learning"; B, "Creating an Environment for Student Learning"; C, "Teaching for Student Learning"; and D, "Teacher Professionalism." Individual teachers also are rated relative to a standard of minimum competence, so that judgments may be made about individuals and their readiness to teach. It is important to note that, on this absolute criterion, average ratings of graduates of all 10 programs exceeded the level of minimum competence. However, in Domains C and D and on six individual criteria, significant differences among the groups were obtained. These differences took on an interesting and surprising pattern.

On Domain C, graduates of traditional teacher education programs were rated higher than graduates of both ARC programs on making goals and instructional procedures clear to students (C1), making content comprehensible (C2), and monitoring student learning and providing appropriate feedback (C4). They also scored significantly higher on the Domain C summary score. However, on other criteria, the patterns of differences changed. For example, in Domain A, a significant effect for program type was found on one criterion, becoming familiar with relevant aspects of students' background knowledge and experience (A1). On A1, graduates of the traditional and collaborative programs, whose ratings did not differ, were rated higher than graduates of the district-only programs. This pattern also held true for B1 (fairness) and the Domain D summary score. On criterion D3, building professional relationships, the collaborative program graduates were rated significantly higher than graduates of both the traditional and district-only programs, which did not differ.

When compared with graduates of traditional programs, the ALTCERT program teachers in Maryland were rated at least satisfactory and often higher by district supervisors, employing principals, and special education supervisors.

Graduates of ARC programs felt better prepared than graduates of traditional programs and more confident in their ability to perform teaching skills related to assessment and school procedure (perhaps because they had had more experience in schools). Their principals–at least the principals who employed and supervised graduates of the collaborative programs–agreed. They rated their employees significantly higher than graduates of traditional teacher education programs on 12 of 20 items keyed to the PRAXIS III criteria. Although ratings of graduates of district-only programs did not differ significantly from either the collaborative or traditional group's ratings, they were consistently higher than those of the traditional group.

To explain these findings, Sindelar and colleagues distinguished between formal and procedural knowledge and argued that graduates of traditional programs tended to be rated highly on tasks involving the former, while graduates of nontraditional programs received high marks on the latter. For example, the Domain C ("Teaching for Student Learning") ratings, on which traditionally trained teachers excelled, seem to represent technical knowledge about effective instruction. By contrast, the PRAXIS III criteria, self-ratings, and principals' ratings, on which the alternatively trained teachers excelled, reflected their understanding of the rules and procedures that govern the way a school works. A good example of this point is Criterion D3, building professional relationships, on which graduates of collaborative programs were rated significantly higher than graduates of the other two groups.

From our perspective, these findings substantiate two critical propositions: ARC programs can produce competent teachers, but not all ARC programs are alike. In fact, in Sindelar and colleagues' research, graduates of ARC programs in which university teacher education programs collaborated with districts were judged superior to graduates of district-sponsored programs by classroom observers and by their principals. Collaborative programs tended to be longer than district-only programs, and they often led to degrees and initial certification. By contrast, district-only programs, in Florida, at least, were add-on programs in that they provided

Good alternative preparation is possible but is not easily achieved.

Alternative is no synonym for quick and easy.

certified teachers the opportunity to add certificates. Some of the district-only programs were populated by teachers who had been reassigned in workforce reductions in the early 1990s. They entered the programs to maintain their out-of-field status and keep their jobs, and they often left for general education jobs when they came available.

Gaynor and Little (1997) described the same phenomenon among students in the VCAAP program. However, Gaynor and Little saw benefit in general education teachers' completing special education courses, even if they fell short of a complete program of study. So do we. However, we also believe the Sindelar and colleagues findings, which generally do not support the efficacy of abbreviated teacher education, even in comparison with other alternative routes. We also interpret the Sindelar and colleagues findings as being consistent with previous research on alternative certification in special education, particularly ALTCERT (Rosenberg & Rock, 1994), which also demonstrated the efficacy of extensive, degree-linked preparation. At this point, we find the evidence on effectiveness of abbreviated, add-on certification models to be either unconvincing (Sindelar et al., 1999), missing, or suspect Edelen-Smith & Sileo, 1996; Gaynor & Little, 1997; Ludlow & Weinke, 1994).

Indicators of Effective ARC Programs

In this section, we detail indicators of successful ARC programs in special education. We do this with considerable caution, in that the available database on ARC programs in special education is quite limited. It fact, it is our belief that this literature represents merely the "tip of the ARC iceberg" and that a rather large underground economy for teaching credentials is in place in many geographic areas of our nation. Clearly, large numbers of uncredentialed special educators are receiving training that leads to certification. Unfortunately, very little information on the nature and efficacy of these programs has been reported in the professional literature. Still, based on the available data–the tip of the iceberg–we believe that the following conditions are necessary if ARC efforts are to be successful.

Meaningful IHE/LEA Collaboration

Based on our review of the available literature on ARC programs in special education, it is clear that meaningful collaboration among key stakeholders is a prerequisite for program success. Clearly significant is Sindelar and colleagues' (1999) finding that graduates of IHE/LEA collaborative ARC programs were judged superior to those who completed LEA-only offerings. How, then, is such collaboration achieved? In two of the programs reviewed (Burstein & Sears, 1998; Rosenberg & Rock, 1994), collaborative planning was expedited because the IHEs and LEAs had collaborated before. In other situations (e.g., Epanchin & Wooley-Brown, 1993), a deliberative process of agenda building, negotiation, and consensus building was necessary before substantive programmatic planning could commence.

For example, with a history of partnerships with the SEA and nearby LEAs (e.g., King-Sears, Richardson, & Ray, 1992; King-Sears, Rosenberg, Ray, & Fagen, 1992), Rosenberg and Rock (1994) had little difficulty forming the ALCERT planning team. Moreover, each of the stakeholders came to the partnership willing to take some risks within a mutually supportive framework. The recruitment and selection of the participants was a prime example of the cooperative nature of the project. Initially, the two LEAs agreed to allocate a fraction of their projected uncertified open positions to the partnership. After an aggressive advertisement and outreach effort conducted by both the LEAs and the IHE, representatives from the LEAs selected individuals believed to have the greatest commitment to teaching students with disabilities. Relevancy of background, academic ability, and communication skills also were considered. Once recommended by the LEAs, each of the candidates had to meet the graduate admission standards of the IHE. Participants had to participate in all aspects of the program: To remain employed by the LEA, participants had to continue

with the ALTCERT training activities; correspondingly, to continue with their graduate study, students had to remain employed within the district. The continued support of the participants required meaningful collaboration among Johns Hopkins University faculty and the LEA mentors, building principals, and special education supervisors. In contrast, Epanchin and Wooley-Brown (1993) and their LEA partners participated in an arduous relationship-building process that had to both (a) overcome a history of mistrust between school district administrators and university faculty and (b) establish an explicit, common agenda that addressed the needs of both the LEA and the IHE. Numerous meetings were held and subcommittees formed to clarify the roles and responsibilities of the key individuals in the partnership. Several times, discussions were heated "as both groups struggled with issues of mistrust, territory, control, and beliefs about educational practice" (Epanchin & Wooley-Brown, 1993, p. 113). Still, because of both the IHE's and school district's willingness to change the traditional way things had been done (e.g., Paul, Duchnowski, & Danforth, 1993), a number of well-trained special educators were developed.

In both of these programmatic examples, the amount of time and effort necessary to develop and sustain the partnership was considerable. Those considering IHE/LEA collaborative efforts should not underestimate the level of commitment necessary for success. This commitment involves not only substantial amounts of time, but also the need for a "champion" who will persist patiently when faced with obstacles that will undoubtedly occur when bureaucratic structures attempt to work cooperatively.

Adequate Program Length with a Variety of Learning Activities

In addition to the evidence that alternative programs are best when offered collaboratively by IHEs and LEAs, there is evidence that programs are most effective when their content is substantive, rigorous, and truly programmatic. Although research to support this assertion is limited, the research that does exist is unequivocal. For example, the effective on-the-job teacher preparation program described by Burstein and Sears (1998) required 37 units of seminars, fieldwork, and traditional coursework. Students were required to prepare journals and portfolios indicating integration of the program's content. Similarly, the ALTCERT program required 36 credits of university coursework and left participants only a course and a project away from a master's degree in special education. Great care was taken to ensure that the competencies of the field-based seminars were the same as those found in the coursework taken by the traditional teacher preparation candidates. The independent evaluation conducted by Sindelar and colleagues (1999) corroborated these findings in comparisons with both traditional teacher education programs and alternative programs that could be more fairly characterized as shortcuts. They found that extensive degree-linked ARC programs were superior to programs that made extensive use of unanchored courses and add-on activities that lacked a unified programmatic approach.

To meet the needs of the nontraditional students, it was also necessary to deliver program content through a number of learning activities and in a number of alternative formats. Since many of their candidates were working as paraprofessionals, going to school, and balancing family responsibilities, Epanchin and Wooley-Brown (1993) made use of integrated block scheduling rather than presenting content in separate isolated courses. In addition to convenience, it was believed that such an approach would avoid redundancy and irrelevancy. One course, Foundations of Learning and Human Development, was delivered through self-paced computer-based modules. Three other programs (Burstein & Sears,1998; Edelen-Smith & Sileo, 1996; Rosenberg & Rock, 1994) made liberal use of unique seminars to complement the content provided in traditional coursework. The content of these seminars (e.g., Developing a Learning Community, Assessing At-Risk and Protective Factors, Beyond Survival: Becoming a Master Teacher) was selected to address the unique needs of the cohorts and designed for immediate and ready

Alternative is used in the sense of reaching nontraditional populations of people, perhaps at nontraditional venues, or through nontraditional means and supports.

application in urban classrooms. Due to geographic characteristics that limited access to training activities, Edelen-Smith and Sileo (1996) delivered their coursework and seminars via distance education provided by Hawaii's Interactive Telecommunications System. This advanced technology allowed teachers to be trained in their home communities, yet still provided the supports characteristic of a large cohort group.

In all cases, programs were responsive to needs of their students and adjusted their instructional delivery systems in a fashion that is consistent with the available literature on the recruitment, education, and retention of nontraditional students. To be effective, each of the programs described here designed their efforts with considerable attention paid to the unique learning characteristics of adult learners, including (a) the desire of adult learners to be connected and supportive of each other's learning; (b) the role of direct experience and prior knowledge in the development of teacher competence; (c) the need for user-friendly, job-related knowledge in convenient, digestible packages; and (d) an understanding of the multiple pressures and life situations (e.g., earning a living, being a spouse and a parent) associated with being an adult (Caffarella & Barnett, 1994; Zemsky, 1993).

IHE Supervision and Building-Based Mentor Support

With the exception of the VCAAP program (Gaynor & Little, 1997), each of the programs reviewed made considerable use of on-site supervision incorporating features of IHE supervision and building-based coaching and mentoring. For example, in the ABC-SE program (Edelen-Smith & Sileo, 1996), each intern was individually supported and supervised collaboratively by one IHE and one state department supervisor. These individuals gathered and shared information from direct observations as well as from site-based administrators and supervisors. Two other programs, the California On-the-Job Program (Burstein & Sears, 1998) and the ALCERT program (Rosenberg & Rock, 1994), made extensive use of high-quality building-based mentors in addition to providing a high degree of university supervision. In both programs explicit criteria guided the selection of mentors, and mentors were provided with ongoing training throughout the program.

The special education research to date offers little support to the proposition that quick and abbreviated preparation is a viable alternative to traditional teacher education.

For example, in both programs mentors were selected based on (a) recognition of superior teaching skills, (b) tenure in the district, (c) extensive experience as a cooperating teacher with student teachers, and (d) an expressed willingness to participate in the development of novice special educators. Once selected, mentors assisted ARC teachers by sharing materials, strategies, and techniques through peer coaching and other collaborative methods. Mentors regularly visited ARC candidates' classrooms and provided feedback on teaching performance and guided teachers in their acquisition of the procedural knowledge (cf., Sindelar et al., 1999) necessary for day-to-day survival. Not surprisingly, teachers in the Burstein and Sears' (1998) program reported that they valued the support provided by university supervisors and their on-site mentor teachers.

Most agree that IHE supervision and on-site mentor support is critical for the development of ARC teachers. However, we remain unsure of the actual levels of support that ARC candidates require, a factor that can be especially critical when the cost/benefit aspects of a comprehensive teacher development program are being considered. Unfortunately, little information regarding the actual level of supervisory and/or mentor support time provided to candidates was reported in any of the ARC program evaluations. In fact, although mentoring has been recommended as a means of facilitating the induction of beginning special education teachers into the profession, there are few specifics indicating what should be included in a mentoring program, how much direct assistance is necessary, and what the nature of that assistance should be (Whitaker, 2000). However, some initial work is beginning to appear in the literature, and although these findings may not be specific to ARC programs, they are relevant to them.

Whitaker (2000) conducted a self-report study of 156 first-year special education teachers who participated in a mentoring program. These teachers believed that mentor/teacher contact must occur weekly to be effective (although this level of support rarely occurs) and that unstructured, informal contacts tend to be more effective than formal meetings and observations. Surprisingly, assistance provided in the areas of emotional support and the procedural mechanics of the job were perceived as being significantly more frequent and effective than assistance in discipline and curriculum and instruction. How these findings generalize to students participating in ARC programs and working as uncertified special educators remains to be seen. Nonetheless, given adequate time, mentors for ARC special education candidates can be especially useful in addressing the range of practical and district-specific topics that cannot be fully addressed in any traditional IHE training program (Lloyd, Wood, & Moreno, 2000).

Those considering IHE/LEA collaborative efforts should not underestimate the level of commitment necessary for success.

ARC Unknowns: Areas of Extreme Concern

Like an iceberg, much of what we need to know about ARC programs in special education remains below the surface, hidden and potentially dangerous. If the indicators of successful ARC programs mentioned previously are considered the tip of the iceberg, the issues raised in this section relate to what remains unknown about the rest of the iceberg.

Need for an Adequate Definition

We argued earlier in this article that the proliferation of ARC programs has rendered the term alternative route useless in defining a category of preparation that may be readily differentiated from traditional teacher education. (We also believe that the traditional program classification encompasses a sufficiently wide variety of programs to render it useless as well, but that is another story.) We believe that teacher education generally is best described as a matrix defined by (a) program length and structure, (b) the manner in which content is delivered, and (c) the nature of the participants. We do not consider these ideas definitive, but hope that by presenting them here we will stimulate the professional dialogue it will take to make them so. We urge researchers comparing teacher preparation programs to go beyond "traditional" and "alternative" classifications. Teacher education research would be better served by consistent and functional descriptions of the programs being compared so that key differences and similarities are made clear.

Shortage of High-Quality Research

The existing literature–or more precisely the scarcity of existing literature–supports the need for additional research and underscores the importance of programs' establishing the merits of their efforts. In our review of the literature, we have found only eight databased efforts that focused on ARC in special education. Simply put, there is not enough research to allay our concerns about the proliferation of alternative-route programs. If the existing literature proves anything, it is that, because no two programs are alike and not all programs are effective, we remain obligated to demonstrate the effects of what we do. We need research in which the teaching competence of program graduates is assessed, and self-reports alone will not do. We need reliable, valid, and independent judgments of competence. We also need longitudinal research to determine graduates' career paths and career longevity. Every effort should be made to ensure that our assessments of outcomes are methodologically rigorous and that we carefully define groups being compared. For example, in many ARC programs, participants are in classrooms functioning as teachers at the start of their preparation programs. Since these individuals are teaching students as well as participating in a preparation program, we must consider what standard of performance we would expect of them. Specifically, is it fair that we compare the performance of first-year teachers in ARC programs to

first-year teacher graduates of traditional programs, or should we hold these developing ARC teachers to a modified standard of performance?

In raising these issues, we are cognizant that poor teacher preparation–regardless of its nature–is not benign. Consequently, ARC programs must "first, do no harm." Credentialing incompetent or ill-trained individuals can result in woeful outcomes suffered by generations of students. We need only to look at the work of Sanders and colleagues (e.g., Sanders & Horn, 1998; Sanders & Rivers, 1996) to see the compounding effects of repeated exposure to poor teaching. These researchers found that groups of students with comparable abilities and achievement levels have vastly different academic outcomes as a result of the teachers to whom they are assigned. Even more frightening are the data suggesting that the deleterious effects of poor, underperforming teachers are both additive and cumulative, and there is little to suggest that these effects can be overcome by more effective teachers in later grades.

In citing these data, we do not intend to single out ARC programs. In fact, we see little reason to exempt traditional teacher education from the same standards and the same obligation to demonstrate the quality of its product. We believe that if we had an adequate body of research to substantiate its effectiveness, teacher education might have avoided the vitriolic criticism to which it has been subjected in recent years.

The proliferation of ARC programs has rendered the term "alternative route" useless in defining a category of preparation that may be readily differentiated from traditional teacher education. Researchers comparing preparation programs are urged to go beyond "traditional" and "alternative" classifications. Teacher education research would be better served by consistent and functional descriptions of programs being compared so that key differences and similarities are made clear.

Lack of Explicit Professional Standards in ARC Programs

Related to the need for substantive and rigorous ARC programs is the need for such programs to adhere to high standards of professional practice. It is generally recognized (e.g., O'Shea, Hammitte, Mainzer, & Cutchfield, 2000; Otis-Wilborn & Winn, 2000) that the relationship between the accreditation of special education preparation programs (i.e., ensuring that programs do adhere to high standards) and the actual credentialing of special educators must be strong and direct. Factors that influence the development of individual special education program standards include both an articulation of the core values shared by faculty who train and supervise teacher candidates and evidence that national standards espoused by relevant professional organizations are included in preparation programs. A recent special issue of Teacher Education and Special Education illustrated how a number of training program administrators are ensuring that their programs reflect national standards and core values. Specifically, Kenney, Hammitte, Rakestraw, and LaMontagne (2000) described how they applied portfolio development and assessment at Georgia Southern University to address NCATE/CEC accreditation competencies; and Otis-Wilborn and Winn (2000) illustrated how they developed and integrated program standards and performance assessments into their program at the University of Wisconsin-Milwaukee.

Still, there is no such requirement for ARC programs in special education, and IHEs that offer both traditional and ARC programs continue to struggle with the prospect of having different standards for different students. In fact, the programs reviewed for this article made little or no mention of professional standards in their efforts. At best, there were descriptions of how the ARC program matched aspects of the traditional program offered by the IHE. It may well be that program developers are unsure as to how ARC programs relate to the professional standards against which traditional teacher preparation is judged. This confusion was well articulated by Otis-Wilborn and Winn (2000), who questioned the utility of holding emergency-licensed teachers to standards of performance that do not recognize the developmental nature of their career progression and the difficulties of their daily job demands.

Are we to hold ARC special educators to the same set of standards as those who enroll in traditional teacher development programs? Or, are we to develop a

separate or parallel track that will recognize and factor in the special nature of these individuals and their training? In any event, if we are to fill our open special education positions with people of quality, there must be a defensible set of professional standards for ARC programs and participants. At present, no such standards are being applied to ARC special education teacher development efforts; and, not surprisingly, we know frighteningly little about how or how well individual programs integrate best practices in professional preparation.

Developing a Sense of Profession and Professionalism

Closely related to the issue of professional standards are the complicated and interconnected issues of teaching as a profession and teacher professionalism. When we speak of an occupation being a profession, we are referring to a specific series of organizational and occupational characteristics that distinguish professional work from other kinds of work. Professionalism refers to the attitudinal attributes and behaviors of those who aspire to, or are considered to be, professionals (National Center for Education Statistics [NCES], 1997).

Almost two decades ago, Birch and Reynolds (1982) observed that calling an activity a profession does not automatically make it one. Professions are differentiated from other kinds of occupations by the level of expertise and complexity involved in the work; it is assumed that professional work requires intellectual functioning and a knowledge base that is not easily acquired or widely held (NCES, 1997). Although a core belief held by teachers is that they are professionals (Day, 1999), the distinction of profession is one that must be earned and awarded through public perception. Criteria used to determine professional status typically include the following (Birch & Reynolds, 1982; Day, 1999; NCES, 1997):

- The requirement of formal credentials or licensing to practice one's craft.
- Formal and informal mechanisms for induction.
- Continuous professional development to upgrade one's skills.
- The ability to exercise substantial authority in regard to workplace policies and practices.
- Having a commitment to client needs.
- Possessing a strong collective identity.
- Receiving relatively high levels of compensation.

Whether teaching students with or without special needs is a recognized profession or a semiprofession (Etzioni, 1969), the issue of "professionalization" continues to be an incendiary topic. Birch and Reynolds (1982) suggested that significant development in the (a) formulation of professional standards and (b) identification and definition of, and training in, a common body of practice for all teachers would be a large step in the professionalization process. A number of teacher educators and organizations (e.g., NCATE, CEC) have taken this charge and have been working to develop and refine standards for the preparation and certification of teachers' professional practice and continuous development. These have not been easy tasks: A perusal of the special education literature illustrates many of the skirmishes that accompany such efforts. For example, there have been numerous arguments regarding paradigm shifts, postmodernism, service delivery options, collaboration with general educators, and the relative merits of qualitative and quantitative research. At the same time, there is a proliferation of ARC options that are free to vary in regard to program format and content as well as standards for

There is not enough research to allay concerns about the proliferation of alternative route programs. The field needs reliable and valid research in which the teaching competence of program graduates is assessed through independent judgements. Longitudinal research is needed also to determine graduates' career paths and career longevity.

participant recruitment, selection, and completion. This irony is not lost on teacher educators (see Sindelar & Rosenberg, 2000) who are required to upgrade the quality of their traditional programs in the face of seemingly standards-free alternative preparation programs.

There is no requirement for ARC programs in special education to adhere to high standards of professional practice. IHEs that offer both traditional and ARC programs continue to struggle with the prospect of having different standards for different students. ARC program developers may be unsure as to how the programs relate to the professional standards against which traditional teacher preparation is judged.

We can only speculate as to what effects the proliferation of ARC programs will have on efforts to professionalize special education. With few existing standards for such programs, and the variety of programs being offered by IHEs, SEAs, and LEAs, we know little about how much of the knowledge base candidates possess or how they were inducted into the classroom. Most disturbing, however, is that we know so little about the professionalism of ARC candidates. Is it reasonable to expect teachers to respect and remain in a challenging occupation that is open to everyone and has multiple, nonstandardized paths to continued employment? At present, we have no answer to this question.

Day (1999) observed that how teachers behave is a fundamental element associated with effective teaching. In addition to being a matter of mastering technique, effective teaching of students with special needs requires caring; creativity; organization; a solid knowledge of child development; and an ability to develop and maintain relationships with students, parents, and colleagues. These complexities demand high levels of teaching skill. We believe that our notion of what constitutes effective teaching cannot be simplified so as to facilitate a hasty entry to the profession. At this point, we can only hope that ARC programs are designed to promote fully the levels of professionalism we would like to see in special education teachers.

Conclusions and Recommendations

A number of years ago, the U.S. Department of Agriculture was concerned that students receiving free and reduced-price lunches were not receiving enough fruits and vegetables in their meals. Rather than increasing the serving sizes of these foods, it was suggested that the ketchup in the lunches be counted as a vegetable. Not surprisingly, the general public was shocked and outraged that a government agency charged with maintaining children's health and nutrition would attempt to solve a serious problem by redefining ketchup as a vegetable.

We are now in a situation in which we are being told that someone who is trained to be a special education teacher through an ARC program has the same qualifications as a graduate of a traditional teacher training institution. Is this is another case of a condiment passing as a vegetable? Unfortunately, we do not have enough information to say. The range and variability of ARC programs, coupled with a shortage of published databased efforts, leaves us with a rather murky landscape, replete with potential threats, promises, and challenges. With all of this in mind, here is what we can surmise from the existing literature:

- The proliferation of ARC programs is best thought of as an iceberg. The small visible portion seen above the surface (i.e., what is published in the literature and/or discussed at national meetings) appears effective when certain programmatic conditions are met. However, most of the ARC enterprise is hidden below the surface. We need to know more about the nature and extent of ARC, both above and below the waterline.

- Successful ARC programs are planned and delivered collaboratively by consortia of IHEs and LEAs, often with specific waivers from SEAs. Programs are of adequate length and employ a variety of learning activities to deliver critical content.

- Successful ARC programs make considerable use of IHE supervision and building-based mentor support to guide teacher development. Mentors are selected based on their superior teaching skills, experience working with student teachers, and willingness to participate in novel approaches to the development of novice teachers.

- A major area of concern regarding ARC programs in special education is the lack of explicit professional standards employed in program development, candidate recruitment, and program completion. In fact, teacher educators continue to struggle with the prospect of having different standards for ARC-developed and traditionally developed candidates.

- We know little regarding how (or whether) the proliferation of ARC programs will affect the professionalization of special education or how completion of an ARC program influences the professional behavior of a candidate.

The shortage of qualified special education teachers has forced those responsible for teacher development and the education of students with disabilities to make difficult choices. Although all want highly qualified personnel, many teacher educators and personnel directors are forced to compromise best practice in professional preparation to recruit needed personnel. In our review of the available research, we have found that ARC programs in special education can develop competent personnel if certain programmatic conditions are met. As we mentioned earlier, the efforts reported in the literature were, by and large, creative initiatives that required (a) meaningful collaboration among IHEs and LEAs, (b) a variety of instructional activities of adequate length, and (c) considerable use of IHE supervision and high-quality LEA mentor support. Clearly, these are the necessary but not always sufficient attributes of a successful ARC program. We believe strongly that the interconnected issues of standards and professionalism must be addressed in each ARC program to ensure that the individuals who enter our children's classrooms know the professional ethics and meet the professional practice standards of our field (CEC, 2000).

We recognize the pressing need to maximize the supply of new teachers and, to this end, the necessity of options. Nonetheless, we remain concerned about the possibility of programs that fail to provide adequate training opportunities and the potential consequences to students with disabilities. Be it purposeful or inadvertent, the temptation to cut corners in content or supervision and mentoring is great. The great demand for special education teachers has made commodities of teacher preparation and licensure and has spawned mass-market options before our knowledge of effective ARC teacher preparation is complete.

In existing studies of ARC training, success has been associated with program substance and rigor. These studies have contributed much to our knowledge of personnel preparation and have illustrated how the collaborative process of designing ARC programs infuses creativity and excitement into teacher preparation activities. Of course, it is not surprising that we would endorse programs of the sort described in this literature: We have designed and implemented ARC programs ourselves and have assessed the merits of our efforts. Nonetheless, our endorsement of ARC training is conditional, because research also shows that not all ARC programming is equally effective. We are troubled by the fact that, in practice, we have no way to separate condiment from vegetable.

While we know from the professional literature that there are a limited number of effective ARC programs, we know from the popular press that ARC programs abound. The determination of where effective ends and ineffective

We know little about the professionalism of ARC candidates. Is it, therefore, reasonable to expect teachers to respect and remain in a challenging occupation that is open to everyone and has multiple, non-standardized paths to continued employment?

We have found that ARC programs in special education can develop competent personnel if certain programmatic conditions are met: (a) meaningful collaboration among IHEs and LEAs, (b) a variety of instructional activities of adequate length, and (c) considerable use of IHE supervision and quality LEA mentor support.

begins–and why–awaits further study. Until research strengthens our understanding of effective teacher preparation, it behooves us to move ahead on the ARC agenda cautiously and with skepticism. We believe that an open marketplace can promote the greatest amount of input and creativity in solving the issue of teacher shortages in special education. However, it is critical that we remain vigilant toward those who would capitalize on the problem by delivering hasty, low-cost, and low-quality ARC programs.

Being a special education teacher is a tough job that requires unique knowledge and skills. When faced with challenges, we must be careful that we do not mortgage our future by adopting policies and practices that are shortsighted and expedient. Solid, well-conceptualized ARC programs may be one of the solutions that can assist in reducing the shortage of qualified special educators. It is up to all of us to ensure that ARC programs provide high-quality teacher education and that the graduates of such programs meet agreed-upon professional standards. The futures of our children depend on it!

References

Banks, S. R., & Necco, E. (1987). Alternative certification, educational training and job longevity. Action in Teacher Education, 9(1), 67-73.

Birch, J. W., & Reynolds, M. C. (1982). Special education as a profession. Exceptional Education Quarterly, 2(4), 1-13.

Boe, E. E., & Barkanic, G. (2000, April). Influences on the supply and allocation of quality teachers: Analyses of the schools and staffing survey. Paper presented at the meeting of the American Education Research Association, New Orleans, LA.

Boe, E. E., Bobbitt, S. A., Cook, L. H., Whitener, B. A., & Weber, A. L. (1996). Predictors of retention, transfer, and attrition of special and general education teachers: Data from the 1989 teacher follow-up survey (Working Paper No. 96-12). Philadelphia: University of Pennsylvania, Center for Research and Evaluation in Social Policy.

Boe, E. E., Cook, L. H., Bobbitt, S. A., & Terhanian, G. (1998). The shortage of fully certified teachers in special and general education. Teacher Education and Special Education, 21(1), 1-21.

Boe, E. E., Cook, L. H., Kaufman, M. J., & Danielson, L. C. (1996). Special and general education teachers in public schools: Sources of supply in national perspective. Teacher Education and Special Education, 19(1), 1-16.

Buck, G. H., Polloway, E. A., & Montorff-Robb, S. (1995). Alternative certification programs: A national survey. Teacher Education and Special Education, 18(1), 39-48.

Burstein, N. D., & Sears, S. (1998). Preparing on-the-job teachers for urban schools: Implications for teacher training. Teacher Education and Special Education, 21(1), 47-62.

Caffarella, R. S., & Barnett, B. G. (1994). Characteristics of adult learners and foundations of experiential learning. In L. Jackson & R. Caffarella (Eds.), Experiential learning: A new approach (pp. 29-42). San Francisco: Jossey-Bass.

Clemson-Ingram, R., & Fessler, R. (1997). The Maryland redesign of teacher education: A commitment to system reform. Action in Teacher Education, 19(1), 1-15.

Conderman, G., Stephens, J. T., & Hazelkorn, M. (1999). A "select" method to certify special education teachers. Kappa Delta Pi Record, 36(1), 16-18.

Cook, L. H., & Boe, E. E. (1995). Who is teaching students with disabilities? Teaching Exceptional Children, 28(1), 70-72.

Council for Exceptional Children. (2000). What every special educator must know: The standards for the preparation and licensure of special educators (4th ed.). Arlington, VA: Author.

Darling-Hammond, L. (1992). Teaching and knowledge: Policy issues posed by alternate certification for teachers. In W. D. Hawley (Ed.), The alternative certification of teachers (pp. 123-154). Washington, DC: ERIC Clearinghouse on Teacher Education.

Darling-Hammond, L. (1999). Solving the dilemmas of teacher supply, demand, and standards. Quality Teaching, 9(1), 3-4.

Darling-Hammond, L. (2000, January). Teacher quality and student achievement: A review of state policy evidence. Education Policy Analysis Archives. [On-line serial], 1(8). Available http://olam.ed.asu.edu/epaa/v8n1 (1 of 48).

Day, C. (1999). Developing teachers: The challenges of lifelong learning. Philadelphia: Falmer.

Edelen-Smith, P., & Sileo, T. W. (1996). The alternative basic certification program in special education: In search of quantity and quality in special education. Teacher Education and Special Education, 19(4), 313-330.

Epanchin, B. C., & Wooley-Brown, C. (1993). A university-school district collaborative project for preparing paraprofessionals to become special educators. Teacher Education and Special Education, 16(2), 110-123.

Etzioni, A. (1969). The semi-professions and the organization. New York: Free Press.

Feistritzer, C. E. (1998, February). Alternative teacher certification: An overview [On-line]. Available: http://www.ncei.com/Alt-Teacher-Cert.htm

Feistritzer, D., & Chester, D. (1991). Alternative teacher certification: A state-by-state analysis. Washington, DC: ERIC Clearinghouse on Teacher Education.

Finn, C. E. (1998, January). Today's academic market requires a new taxonomy of colleges. The Chronicle of Higher Education, 44, B4-B5.

Gaynor, J. F., & Little, M. E. (1997). The expanding role of LEAs in special education teacher preparation: The view from a local school district. Teacher Education and Special Education, 20(4), 281-300.

Hawley, W. D. (1992). The theory and practice of alternative certification: Implications for the improvement of teaching. In W. D. Hawley (Ed.), The alternative certification of teachers (pp. 3-34). Washington, DC: ERIC Clearinghouse on Teacher Education.

Henke, R. R., Choy, S. P., & Geis, S. (July,1996). Schools and staffing in the United States: A statistical profile, 1993-94. Washington, DC: U.S. Department of Education.

Hillkirk, R. K. (2000). Effective models for alternative programs in teacher education. In D. J. McIntyre & D. M. Byrd (Eds.), Research on effective models for teacher education: Association of teacher educators yearbook VIII (pp. 195-202). Thousand Oaks, CA: Corwin.

Kenney, S. L., Hammitte, D. J., Rakestraw, J., & LaMontagne, M. J. (2000). Special education and the P-16 initiative addressing CEC competencies through portfolio development and assessment. Teacher Education and Special Education, 23 (2), 93-108.

King-Sears, M. E., Richardson, M., & Ray, R. M. (1992). Generalizing curriculum-based measurement from university coursework to school-based practice: Train and hope? LD Forum, 17(3), 25-28.

King-Sears, M., Rosenberg, M. S., Ray, R. M., & Fagan, S. A. (1992). A partnership to alleviate special education teacher shortages: University and public school collaboration. Teacher Education and Special Education, 13(1), 9-17.

Kirby, S. N., Darling-Hammond, L., & Hudson, L. (1989). Nontraditional recruits to mathematics and science teaching. Educational Evaluation and Policy Analysis, 11, 301-323.

Lloyd, S. R., Wood, T. A., & Moreno, G. (2000). What's a mentor to do? Teaching Exceptional Children, 33(1), 38-42.

Ludlow, B. L., & Weinke, W. D. (1994). Alternative certification in special education: A qualitative study of two models. In D. Montgomery (Ed.), Rural partnerships: Working together. Proceedings of the annual national conference of the American Council on Rural Special Education. Austin, TX

Miller, J. W., McKenna, M. C., & McKenna, B. A. (1998). A comparison of alternatively and traditionally prepared teachers. Journal of Teacher Education, 49, 165-176.

Miller, M. D., Brownell, M. T., & Smith, S. W. (1999). Factors that predict teachers staying in, leaving, or transferring from the special education classroom. Exceptional Children, 65(2), 201-218.

National Commission on Teaching and America's Future. (1996). What matters most: Teaching for America's future. New York: Author.

National Center for Education Statistics. (1997). Teacher professionalization and teacher commitment: A multilevel analysis (U.S.D.E. Publication No. NCES 97-069). Washington, DC: Author.

O'Shea, D. J., Hammitte, D., Mainzer, R., & Cutchfield, M. D. (2000). From teacher preparation to continuing professional development. Teacher Education and Special Education, 23(2), 71-77.

Otis-Wilborn, A., & Winn, J. (2000). The process and impact of standards-based teacher education reform. Teacher Education and Special Education, 23(2), 78-92.

Paccione, A. V., McWhorter, B. A., & Richburg, R. W. (2000). Ten years on the fast track: Effective teacher preparation for nontraditional candidates. In D. J. McIntyre & D. M. Byrd (Eds.), Research on effective models for teacher education: Association of teacher educators yearbook VIII (pp. 218-234). Thousand Oaks, CA: Corwin.

Paul, J. L., Duchnowski, A. J., & Danforth, S. (1993). Changing the way we do our business: One department's story of collaboration with public schools. Teacher Education and Special Education, 16(2), 95-109.

Rosenberg, M. S., & Rock, E. E. (1994). Alternative certification in special education: Efficacy of a collaborative, field-based teacher preparation program. Teacher Education and Special Education, 17(3), 141-153.

Rosenberg, M. S., & Sindelar, P. T. (1998). The impact of market driven higher education practices on professional teacher development. Teacher Education and Special Education, 21(3), 227-235.

Roth, R. A., & Lutz, P. R. (1986). Alternative certification: Issues and perspectives. Charleston, WV: Appalachia Education Laboratory. (ERIC Document Reproduction Service No. ED 296 980).

Sanders, W. L., & Horn, S. (1998). Research findings from the Tennessee Value-added Assessment System (TVAAS) data-base: Implications for educational evaluation and research. Journal of Personnel Evaluation in Education, 12, 247-256.

Sanders, W. L., & Rivers, J. C. (1996). Cumulative and residual effects of teachers on future academic achievement. Knoxville: University of Tennessee, Value-Added Research and Assessment Center.

Shen, J. (1997). Has the alternative certification policy materialized its promise? A comparison between traditionally and alternatively certified teachers in public schools. Educational Evaluation and Policy Analysis, 19, 276-283.

Shen, J. (1998). The impact of alternative certification on the elementary and secondary public teaching force. Journal of Research and Development in Education, 32, 9-16.

Shen, J. (2000). The impact of the alternative certification policy: Multiple perspectives. In D. J. McIntyre & D. M. Byrd (Eds.), Research on effective models for teacher education: Association of teacher educators yearbook VIII (pp. 235-247). Thousand Oaks, CA: Corwin.

Sileo, T. W. (2000). Reform and restructuring in special education teacher preparation: Multicultural considerations. In J. Smith-Davis & K. Murray (Eds.), Eighth Annual CSPD Conference on Leadership and Change: Monograph of proceedings (pp. 59-69). Alexandria, VA: National Association of State Directors of Special Education.

Sindelar, P. T., & Marks, L. J. (1993). Alternative route training: Implications for elementary and special education. Teacher Education and Special Education, 16 (2), 146-154.

Sindelar, P. T., Rennells, M. S., Daunic, A., Austrich, C., & Eisele, M. (1999). Systematic evaluation of alternative routes to teaching competence: Project SEART-C final report (Tech. Rep. No. 10). Gainesville, FL: Center for School Improvement.

Sindelar, P. T., & Rosenberg, M. S. (2000). Serving too many masters: The proliferation of ill-conceived and contradictory policies and practices in teacher education. Journal of Teacher Education, 51, 188-193.

Thomas B. Fordham Foundation. (1999). The teachers we need and how to get more of them: A manifesto. Washington, DC: Author.

Traub, J. (1997, October). Drive-thru U. Higher education for people who mean business. The New Yorker, 115-122.

U. S. Department of Education. (1999). Twenty-first annual report to Congress on the implementation of the Individuals with Disabilities Education Act. Washington, DC: Author.

Whitaker, S. D. (2000). Mentoring beginning special education teachers and the relationship to attrition. Exceptional Children, 66(4), 546-566.

Zemsky, R. (1993). Consumer markets and higher education. Liberal Education, 79, 14-17